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ABSTRACT

This document is comprised of four chapters that show how to use research-abstract worksheets and personal reviews of the literature as tools for linking research and practice in the helping professions. The research tools help to condense lengthy reports, place them into a consistent format, and actively involve the information seeker. Chapter 1 describes the relationship between professional problems and research, arguing that the nature of professional practice in the helping professions relies, to a large extent on research. It describes the "research game," which stresses public debate, follows a series of conventions, and uses publications for commentary. Chapter 2 describes a process for making a research report, qualitative or quantitative, useful to the practitioner. It outlines the steps involved in creating a research-abstract worksheet and discusses the logical relationships among problems, hypotheses, and variables. Chapter 3 offers guidelines for creating abstract worksheets on reports of educational practices. Chapter 4 presents strategies for using the library intelligently and for developing a personal review of the literature (PERL), and describes the importance of creating PERLs. Appendices contain examples of four research-abstract worksheets and one example of a PERL. Two figures are included. (LMI)

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TOOLS FOR LINKING RESEARCH AND PRACTICE IN THE HELPING PROFESSIONS: RESEARCH ABSTRACT WORKSHEETS AND PERSONAL REVIEWS OF THE LITERATURE

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Table of Contents

Chapter 1 Research and the Nature of Professional Problems . . 4

The Nature of Professional Practice 5

The Nature of Research 8

The Publication of Research 9

The Conventions of Quantitative Research 10

The Conventions of Qualitative Research 14

Chapter 2 Creating A Research Abstract Worksheet For A Research Report 16

The Research Abstract Worksheet 18

The Logical Relationship Among Problem, Hypothesis, and Measure 31

Dealing with Qualitative Studies 39

Why CREATE Worksheets? 45

Chapter 3 Creating a Practice Abstract Worksheet for a Report of Practice 47

The Practice Abstract Worksheet 48

Significant Differences Between RAWs and PAWs 51

Using the Library Intelligently 53

Creating a PERL (PErsonal Review of the Literature) . . 57

PERLs and Professional Practice 60

Appendix B: An Example of a PERL 75

Chapter 1 Research and the Nature of Professional Problems

This chapter presents a point of view about the relationship between professional problems and research. It argues that the nature of professional practice in the helping professions rests, in great part, on research about the helping professions. Athletic trainers, educators, nurses, social workers, and speech and hearing specialist ought to be intelligent users of research in their respective fields. To be intelligent users of research, they must understand what research is and how researchers play their game. It is a game that stresses public debate, that follows a series of conventions, and that uses publications as a way of communicating. What is the relationship of the research game and professional practice?

The Nature of Professional Practice

What is professional practice? Professional practice fundamentally consists of solving a series of on-going problems. These problems involve choices between alternative actions. Professionals must choose between competing alternatives and then act.

More formally, a professional problem asks: Of the alternative professional means available, which is the best to

achieve the desired professional goal? Throughout the remainder of these chapters, as such questions are discussed I will use examples from the field of education. I do so because I know a little about that field; I am ignorant about athletic training, nursing, social work, and speech and hearing problems. However, in the various classes I have taught using the tools I will present in these chapters, students from these and other fields have profited greatly. I ask those of you who are not in education to make the effort either to recall your days as a student or to translate the examples into your respective fields.

Now, suppose my professional goal is to teach a group of tenth graders U. S. History from 1865 to the present in a way that produces student achievement and good citizenship. My professional problem is: of the methods for teaching tenth graders U. S. History from 1865 to the present, which is best in terms of the professional goals of student achievement and development of citizenship?

One way to answer this question is to ask a group of tenth grade U. S. History teachers to see if there is a consensus on which method is the best. Another route is to examine critically my own experiences as a tenth grade student and as a tenth grade U. S. History teacher to see which method is best. A third path is to Xerox worksheets from a teacher guide provided by a publisher and assign pages from a standard U. S. History textbook as well as having speakers from city and state government.

The way advocated in these chapters is to turn to research

literature to seek an answer to this, and other, professional problems. What do research reports suggest is the best way to achieve these professional goals? Since professional problems faced in everyday practice are often the source of research questions, the reports generated by researchers often are useful for professionals as they face their professional problems.

This line of reasoning became common with the development of educational research in the 1920s; it is still advocated by many today. Those who first made this argument about the relationship of research and practice were primarily psychologists and sociologist using quantitative methods. Experiments, field studies, and surveys were common tools. While many continue to stress these quantitative methods, today others following the anthropological tradition suggest the use of qualitative methods to understand professional practice. Intensive interviews, case studies, and participant observation are used frequently. Practicing professionals should look to quantitative and qualitative research studies to resolve their problems.

The relationship between research and practice should not be overstated. Many times professionals ask questions that researchers have not examined. Researchers may not be interested in these problems or may lack the tools to answer them. At other times researchers are interested in accounts of the educational world that professionals deem unimportant. Practice and research are driven by their own internal logics; practice seeks to solve problems, research to provide accounts. In schools or colleges

of education, these two traditions ought to be linked.

In sum, the approach advocated here, as well as by many other people and textbooks, uses the results of research reports to determine which of several possible methods is best at producing desired professional goals such as student achievement and citizenship. Such an approach requires reviewing a number of research studies, evaluating their strengths and weaknesses, and summarizing their results to see if one method consistently turns out to be the best.

This approach also suggests a moral imperative for professionals. If a review of the research suggests that a method does exist that produces consistently results that are far superior to other methods, as a professional you are obliged to use that superior method. Let me repeat; if a superior method exists, you ought to use it.

If the results of a review indicate that no method is superior, then you might seek consensus from colleagues or use the method that the teacher prefers. If research indicates no clear result, then you must turn to professional judgment.

The Nature of Research

In contrast to professionals who ask which is the best method for accomplishing a professional goal, the major problem that quantitative and qualitative researchers face is: what is the best account of the world?

Both professionals and researchers seek a description of the world that accentuates relations between and among events.

However, the intent of their descriptions is different. The practitioner wants to know in order to act; the researcher wants to know in order to understand. In contrast to the professional U. S. History teacher, the researcher would ask: does lecture and recitation method or self-directed readings method of teaching U. S. History since 1865 produce the greater gain on a standardized achievement test and the greater gain on a test of citizenship attitudes for tenth graders? Researchers are satisfied if they can provide an account of the world that answers this question. At this point, they have accomplished their task as researchers. While they may be pleased if others, such as professionals, then use this account to enhance their work such application are not important in their efforts to account for the world.

The Publication of Research

Research reports answer research questions. Researchers seek to have these reports published for two reasons.

First, publishing results affords other researchers opportunities to examine the report to see if there are strengths that increase the credibility of the account or faults that discredit the account.

Researchers are extremely sensitive to sources of bias that might influence the accounts they present. They are nervous about consciously or unconsciously creating or interpreting information in ways that turn out as they consciously or unconsciously desire. They worry that their pet notions may lead

them to create or to misread information that supports those pet notions. They strive to avoid the all-too-human fault of finding out what we want to find out.

They also worry that bias may creep into reports as they implicitly accept everyday assumptions. For example, not long ago a researcher pointed out that when superintendents were referred to in a report, they were always identified as "he" and never as "she." By publishing results, researchers provide others the opportunity to explore reports for such implicit bias.

Second, publishing results provides researchers with an on-going record of research problems, methods, and conclusions. By examining this record, current researchers may profit from the insights and the failures of their predecessors.

It is important to realize that over the last two decades published research reports have become increasing accessible. The advent of computers have made the retrieval of research reports easier for professionals and researchers. We now can literary retrieve everything that has been written about many topics. We can almost know it all.

The Conventions of Quantitative Research

To intelligently read quantitative research reports, professionals need to understand a series of conventions. These conventions are used because researchers believe they demonstrate the logic of the research argument; this demonstration also may reduce bias. Since these research conventions are demonstrated

in every piece of quantitative research, professionals must recognize them and understand why researchers use them. These conventions, in sum, make it possible for professionals to create research abstract worksheets and a personal review of the literature.

A conventional quantitative research report begins with a statement of a problem. The problem sets the stage for the remainder of the report by asking: what is the relationship (R) between one thing (X) and another thing (Y)? For example, the problem of might be: Does teaching method one or teaching method two have the stronger relationship with school achievement?

You should note here that for professional problems X is two alternative professional means and that Y is a desired professional goal. The professional question is: which of the two methods, X1 or X2, has the stronger relationship (R) with Y? You also might note that frequently one of these methods is a traditional approach and the other is a new, innovative approach.

The larger problem then is restated into a hypothesis or several hypotheses. Hypotheses are statements that a relationship (R) exists between X and Y (X R Y). They are positive statements that can be tested in the real world. For example, a research hypothesis might be: For tenth grade U. S. History students in Milwaukee, Wisconsin, lecture and recitation method (X1) produces (R) greater achievement (Y) than self-directed reading method (X2). This hypothesis could now be tested to see if in fact there is a greater positive relationship

(R) between lecture and recitation (X1) and achievement (Y) than between self-direct reading (X2) and achievement (Y).

The hypothesis or hypotheses then are made specific by indicating how X and Y are to be measured. There should be a specific measure for each X and for each Y. For example, we might measure lecture and recitation in Milwaukee U. S. History classrooms for the 1990-91 school year by using a checksheet concerning classroom actions and filling it out completely at seven minute intervals (X1). We might measure self-directed reading method by the number of book reports that students complete successfully (X2). We might measure academic achievement by Milwaukee students' scores on a national standardized test of U. S. History (Y).

At this time we set the probability level (often called the alpha level) that must be exceeded if we are to accept that a relationship (R) exists. Conventionally, this alpha level is set at .05 or .01. This means that the relationship we find could exist by chance less than 5 (or 1) times out of 100.

After the hypothesis is stated, a section conventionally called procedures or method presents information about the people or schools studied (sample), the procedures or things done to people and schools (procedures), and the statistical test or tests used to see if the relationship exists. This section is often lengthy because it is very important. Who we examine, how we treat them, and how we decide if X1 or X2 really is related (R) to Y are important topics.

The next section of a research report describes the results of testing the hypothesis. It might say something such as: In our sample, lecture and recitation method (X1) and achievement (Y) were related at .82 while self-directed reading method (X2) and achievement (Y) were related at .23. The differences in these two relationships are less than our predetermined alpha level of .05; it occurs by chance less than one in a thousand times (.001). Therefore, our relationship is "statistically significant" and the hypothesis that lecture and recitation method (X1) has a stronger relationship to achievement (Y) than self-directed readings method (X2) is confirmed.

The last section generally is called the conclusion and always contains an answer to our research problem. It tells us if X1 or X2 is or is not related (R or NOT R) to Y. The conclusion section often is a place for speculation about the import of X1 being related to Y--if they are strongly related, professionals ought to use X1 if they desire Y. If they are not strongly related, this section often calls for further studies of the relationship of X and Y and may suggest that we should include Z (a new method or a different set of conditions).

That's it. In journals that publish quantitative research articles in fields such as education, psychology, and sociology, there are small differences in ways references are cited, headings created, or tables presented, but these conventions are followed.

Because of these conventions, my students and I (and other

professional educators) can trot off to any library on any college or university campus and use computer catalogs and retrieval systems such as ERIC to select articles in any journal that publishes quantitative research reports. We then may look at these reports intelligently. Intelligently means we can ask: What is the problem? What are the hypotheses? And so on.

Why do the research journals use these conventions? They are pragmatic; they work if we seek to provide accounts that display the logic of the research argument and if we are seeking to eliminate bias from these accounts. Researchers begin with a problem and move logically through a series of steps that ultimately produce a conclusion. The conventions present a clear report of those steps that others may follow and then constructively criticize.

Research reports rarely mirror in exact detail every step the researchers actually did. For example, researchers rarely report that on the first computer run they made had an error and they got a pile garbage. Equally, researchers rarely report that the first computer run they did in the ERIC system produced no good articles because they used bad descriptors. Reporting our errors may be fun, but it does little to help us understand the problem and the steps taken to arrive at the conclusion. Those steps are what we are interested in; seeing the logical relationship between problem and solution is the end conventions serve.

The Conventions of Qualitative Research

In contrast to the tidy conventions of quantitative researchers, qualitative researchers appear messy. While they are interested in presenting a good account of the world, they go about that task in ways that differ from quantitative researchers. As a way of introduction to qualitative research, I shall note three of these differences.

First, qualitative researchers often enter the setting where they will conduct their research with a general sense of a problem. As they come to understand the setting, they sharpen and refine the problem. This means that qualitative researchers rarely test hypotheses.

Second, qualitative researchers collect and analyze information at the same time. They do not collect information and then analyze; they collect and analyze at the same time. This means, for example, if they are interviewing a group of students, the first interview is conducted and then analyzed before the second interview is conducted. Changes may be made in the interview schedule before the second interview is conducted. This means that qualitative researchers rarely use measures.

Third, qualitative researchers seek to understand how those they are studying see their world. They ask the participants to tell them in their own language what is happening. The researchers are dependent upon actors in the scene for an understanding of what is going on. This means that qualitative researchers rarely manipulate the setting or treat subjects.

These are important differences. Efforts to understand the

meaning of these differences, and many other differences between quantitative and qualitative research, far exceed the role of these chapters. Despite these differences, both types of research can be abstracted. The next chapter turns to that task.

Chapter 2 Creating A Research Abstract Worksheet For A Research Report

This chapter presents a process for making a research report--quantitative or qualitative--useful to a practitioner. The process involves creating a research abstract worksheet.

The title "research abstract worksheet" was chosen to indicate two things about the process: first, a study or report is reduced (abstracted) following the research conventions. This means the abstracting technique can be applied consistently to other studies or reports. The results then can be used to compare several--two or five or ten or twenty or one hundred--research reports. This comparison is facilitated because each report will always be in the same format. As simple as that sounds, abstracting is the necessary first step for understanding what research says.

Second, the abstracter's efforts create the worksheet. Worksheets are neither notes nor quotes; the abstracter must tailor the author's work to "fit" precisely the conventions. Many times researchers shortchange parts of conventions; in these cases the abstracter must elaborate. Many times parts of conventions are reported in detail; in these cases the abstracter

must edit.

The abstracter must actively participate in the process of creating the worksheet. This creative act produces many more insights than simply Xeroxing the entire article, highlighting a copy using some wild colored ink marker, or selecting quotations from the article. In sum, in creating worksheets we come to understand not only the research report but something about the research process itself.

Some of my students have suggested the process for quantitative reports creates RAW (research abstract worksheet) information and for qualitative reports, QRAWs. Once the RAW and QRAW information has been collected, students can then process that information into personal reviews of literature.

Unfortunately, the best my students have come up with for PErsonal Reviews of Literature is PERL (pronounced "pearl," as in pearls of wisdom). I guess you take what you can get.

The descriptive sections for an abstract worksheet for a quantitative or qualitative research report consists of seven parts. The evaluation sections differ in length for quantitative and qualitative reports. Finally, both worksheets contain a section for your notes. **We strongly recommend that you follow this advice about the structuring of each part; do not look for shortcuts or easy ways to do a section.**

This chapter begins with an overview of the RAW. After this description, I shall discuss in some detail the logical relationship among problems, hypotheses, and variables. I then

turn to abstracting qualitative research reports (the QRAW) and conclude with three advantages to creating worksheets.

The Research Abstract Worksheet

The research abstract worksheet consists of nine parts.

Part 1: Bibliographic citation.

Always begin your RAW with a **complete** bibliographic citation. I recommend using the American Psychological Association (APA) format; it is commonly used by journals and is accepted by most colleges and universities for theses and dissertations. For example, using APA format, the following is an acceptable RAW citation for a research article:

Finn, J. D. (1989). Withdrawing from school. Review of Educational Research, 59, 17-142.

Check the APA manual for citation formats for other formats such as chapters in books or books.

Whatever format you elect to use, use it consistently. Make certain it includes the author or authors names, the exact title of the article the journal, the year of publication, the volume number, and the pages. For books, make sure you include the publisher and place of publication.

It is wise to indicate on the top of the abstract several

other important pieces of information. One piece is the library where the article or book was located. This is particularly important if you use more than one library. A second is the date when you did the worksheet. Third, in the upper left hand corner put the first letter of the first author's last name in big print. It makes sorting easier, particularly when it comes time to create a bibliography. Also, you may want to put in the upper right hand corner a descriptor for the topic of the review, such as "SCHOOL PRINCIPALS R SCHOOL CLIMATE."

Lastly, some hints that have served my students well. First, learn to do the worksheet as you read the article. Over time you will be able to do the worksheet as you read the article the first time. For instance, you will get good at skipping a part until you find it in the report. Second, abstract on a piece of ordinary notebook paper. This way you can erase or add information as well as writing on the back of the page. Third, if you do type your abstracts (I don't) use a word processing program that permits you to look at several documents (in this case RAWs) at the same time. Fourth, put the completed RAWs in a labelled manila folder containing all the RAWs on that topic. You can then sort the worksheets any number of useful ways (by date of doing, by date published, or by first author's last name).

Part 2: Research Problem.

The first element of the worksheet is the research problem.

In general, research problems ask the question: what is the relationship (R) between X and Y? Research problems that relate to professional practice have a distinguishing characteristic. They can be stated as a question of the form: What is the relationship (R) between X1 and X2 and Y? Sometimes the author(s) will do this for you; sometimes you have to do this yourself. (That is why this is called a worksheet!)

Always state the problem as a question. Using the question form accentuates the nature of research as a way of providing an account of the world that highlights relationships. A typical research question about professional practice might be: "Between a phonics based reading method (X1) and a whole language reading method (X2), which has the stronger relationship with high scores on a test of reading (Y)?" In this example, X is a variable consisting of two different reading methods and Y is success in reading. The account to be developed asks if X1 or X2 is more strongly related (R) to Y.

Don't be hesitant to put X1, X2, and Y in the problem statement. It helps clarify the problem and it lets you start a pattern of looking for how X1, X2, and Y are treated in the remaining steps of the argument.

Research reports that are important for professional practice always compare the results of at least two different practices. Research about professional practice examines the effects of different types of, and now the education list starts, reading instruction, methods in social studies, math curricula,

structuring class time, methods of assigning homework, teacher questions, or means of teaching students how to write. In our formula of X R Y, X is really X1 versus X2. In sum, professional problems exist because proponents of a method claim it is far better than another method at achieving a professional goal. If there is only one method, there is no professional problem. Fortunately for researchers, there are generally competing methods.

This definition restricts RAWs to a particular class of reports: those that examine the relationship between X1, X2, and Y. Other reports, such as those that describe X1, seek to clarify the meaning of X2, compare measures of Y, or that review the literature about X1 or X2 or Y, do not fit. While they are important pieces of scholarship, they will <u>not</u> fit in this format. (Don't ignore these pieces of scholarship; they may provide important insights about the educational problem. They just don't fit in a RAW.)

Some articles will have more than one problem. In that case, label each problem, e.g., P1, P2, and so on.

Problems usually are stated in large theoretical terms, usually called concepts or constructs. Concepts or constructs often can be measured in different ways. For example, the construct "success in reading" could be measured by a reading test, a teacher's judgment, the number of books read in a library contest, or a self-report of how much one reads.

Part 3: Hypotheses.

The second part of the abstract is the hypotheses. (It is rare that a research report consists of a single hypothesis.) Hypotheses translate theoretical problems into empirical statements. They are positive statements of the form: XA is related to Y or XB is related to Y. It is a good idea to label each hypothesis as H1, H2 and so on. For example, H1--XA is related to Y, H2--XB is related to Y, and so on.

Unfortunately, researchers can go one of three ways in translating problems to hypotheses.

First, researchers may repeat the theoretical terms used in the research problem and then specify the measures in the measures section.

Second, researchers may translate to mid-level. These mid-level terms are variables. Variables show how things can vary. For example, researchers may frame the first hypothesis (H1) as: "There is a relationship between whole language reading method and grades in reading in elementary school students." We should expect the second hypothesis (H2) to be: "There is a relationship between watching VCR tapes of literary classics and grades in reading in elementary school students." Since the methods can vary, they are a variable; since grades can vary, they are a variable.

Third, researchers may translate theoretical terms directly to measures. For example, "There is a relationship between the whole language method used to teach Mary reading and Mary's grade

in reading." Measures tell us how we put individuals in categories or how got we scores for individuals.

Be careful here. The notion of individual should not be taken to mean necessarily a single person. Sometimes researchers treat as an individual scores from a classroom, from a school system, a region of a state, a state, a region of a country, a country, or the planet Earth. To help with this problem, researchers often speak of their unit of analysis; this is the smallest "individual" unit they will use in their work.

As a strategy, I recommend that you restate the hypotheses to mid-level; make them positive statements of relationships between variables. This restatement emphasizes the logical linkage between the problem and the hypotheses. It also gives you a chance to align the number of problems and hypotheses. Does P1 have an H1, does P2 have an H2, and so on? Or, as is more commonly true, is P1 broken into H1, H2, and H3?

I also suggest that you put additions in brackets [ ] in this or any other part. It helps show what you did. I also PRINT additions to help spot my own work. For example, [H3 UNTREATED GROUP R TEST SCORES].

Part 4: Definitions of variables/measures.

Each variable in each of the hypotheses should be linked to a measure or a category. One simple way to deal with measures is to number each variable in the hypotheses and then put the same number by its measure. This way you can check to see if a

measure or category is given for each variable.

At this point you should notice something. The task of the worksheet is to line up problems, hypotheses, and measures. A good way to do this is to number concepts or constructs in problems, number variables in hypotheses, and number measures. The more things line up, the better.

A measure can provide us with information of two different types. First, a measure can produce a number that places a unit of analysis in a category, for instance, an individual person by gender. Here a male might be given the number 0 and a female the number 1. Second, a measure can give a unit of analysis a score on some action. For instance, Mrs. John's third grade class averaged 33 on the Smith Test of Spelling.

You often can spot measures and categories by asking yourself if somebody has done something. For example, has the school system determined that John be classified in the category of elementary student? Have all the elementary students in the Lawton school district taken and received a score on the Stanford-Binet Intelligence test and then have these scores been averaged? Measures and categories always are applied to units of analysis.

If the theoretical term or the variable is not defined or measured, list the term or variable and print in brackets [NOT DEFINED]. This indicates to you that you have noted and added something important to the worksheet.

Be alert here for a common trick. Frequently the

theoretical term will be "achievement." The researchers will discuss achievement in the problem statement. For example, what is the relation of method A and method B to achievement?

Achievement then vanishes. It does not appear in the hypotheses or measures parts. (This is particularly true in reports where the researcher does not list formally the hypotheses.) As you are reading the procedures part you discover that students were given the Iowa Test of Educational Development and the composite scores were used to measure achievement.

You must now backtrack and insert this information in the hypotheses and measures parts. Technically, the pattern is:

theory--achievement (X1);

hypothesis--students' scores on a standardized norm reference test (V1); and,

measure--a student's composite score on the Iowa Test of Educational Development (M1).

Usually, my students and I list the linkage as:

theory--achievement;

hypothesis--ITED; and,

measure--ITED composite score.

Don't get lazy. Work carefully through the entire article to see how each variable is measured.

Lastly, you will find that my students and I sometimes call this section "Definitions of Variables" and sometimes "Measures." It really doesn't matter much which label you use as long as you do the work required.

Part 5: Design and procedures.

This will be the longest section of your worksheet. It consists of three elements: sample, procedures, and statistical tests used. **Make sample, procedures, and statistical tests used each a separate paragraph. (This section, then, always has three paragraphs!)**

The sample should be described carefully. Who was included? Does the sample used appear similar to the population of interest (the group of interest to the researcher)? Were volunteers used? How were groups created? Were there unusual characteristics of individuals or groups?

The discussion of procedures should answer the question: what was done? Usually the best way to handle this question is to describe chronologically what happened. What was done first? Second? Third? Lastly? Strike a balance between describing in detail every last thing that was done and a general overview of what was done.

This is a good time to make certain that you understand the contrast between X1 and X2. Be certain that you understand how these groups were treated differently. For example, was one group was given a special set of materials to use to understand the ecology of a rain forest while the other group used usual materials such as the textbook?

Students find as they read several research reports in a particular area the task becomes easier because many areas have fairly standardized procedures. For example, it is common in

educational reearch to use national standardized norm referenced tests as measures of achievement. As you become aware of these procedures, you can develop your own shorthand descriptive terms. You can also note when standardized procedures are not followed (and why). Generally, the procedures section is the longest section of the entire worksheet.

You should indicate the statistical test or tests used. There should be a match among measurements, procedures, and statistical tests used. If no statistical test is performed or the tests are not reported, this should be noted, e.g., [NO STAT TEST REPORTED].

Part 6: Findings.

This part lists the hypotheses and indicates whether they were confirmed or not confirmed. A simple way to do this is to list the hypotheses (abridged) and the print the results behind each hypothesis. For example, H1 special teaching method R scores on standard test NOT CONFIRMED. (Note that I abbreviate "relationship" as "R" or if I'm lazy, "r"; I also use capital letters to highlight results.)

This part of the RAW displays the link between the hypotheses and findings. Each hypothesis should have a finding. If there is a mismatch or omission, note it here in brackets [H2 NO FINDING].

Part 7: Conclusions.

The conclusion answers the research problem. If there is a single problem, there should be a single conclusion. If there are two problems, there should be two conclusions. And so on.

The conclusion presents the theoretical answer to the theoretical problem. In terms of research for professional practice, the conclusion may be that X1 is a better method than X2 for producing Y, that X2 is a better method for producing Y, or that there is no difference between X1 and X2 for producing Y.

Here's a conclusion I like. Burlingame's RAWs and PERLs method is strongly related to improved use of research in solving school problems. Some of my students like this one: Burlingame's RAW and PERLs method is strongly related to successful completion of theses and dissertations.

Part 8: Evaluation.

Up to this point, the worksheet has been descriptive. It has presented an account of what the author(s) did. This section seeks to evaluate the study.

The evaluation section has three parts: method; internal validity; and, external validity.

Method describes the methodology used in the study such as experiment, correlation, or naturalistic.

Internal validity deals with the technical strengths and weaknesses of the research report. Four topics should be reviewed: (1) subjects; (2) groups; (3) treatment; and, (4) measures.

External validity deals with the generalizability of the report to other settings. Three topics should be reviewed: (1) population; (2) other settings; and, (3) procedures.

The evaluation should be done in a mechanical fashion. First, list the method; second, cover each of the internal validity topics; lastly, cover each of the external validity topics.

Lastly, the first few RAWs that you do on a topic will not have elaborated evaluation sections. They will appear skimpy and not developed. As you continue to work in a topic, you will discover that this section before increasingly useful. You begin to get a sense of how researchers in this area do their work. You also will find yourself going back to the early RAWs on this topic and filling in this section. The more you know about a topic, the more you will find the evaluation section useful.

Part 9: Notes.

This section is reserved for your notes. It is a good place to:

(1) Compare this worksheet to others you have been working on. For example, how does the procedure in Smith (1990)--your current worksheet--compare to Johnson (1988)?

It is a good habit to refer to the worksheets by the authors' names and the date of publication. This reminds you of the fact that somebody made decisions about what was to be done and that these decisions may have been influenced by the times in

which they were made.

(2) Highlight particular strengths and weaknesses of this study as revealed by the evaluation. Again, compare these to other studies. Are you finding out something about this study or about the area?

(3) Note articles or books you have not yet examined. Most research reports review earlier studies; this is a gold mine of possible sources. Track down footnotes.

(4) Make comments to yourself about things to watch for in this study or other studies. Look for trends or for shifts.

(5) Note juicy information found in the report. Odd, but interesting, stuff should be put in Notes.

You get the idea. This is the section to think about what you are finding and not finding.

As we review RAWs, my students and I find it helpful to put the date by any additional notes we may make. As we reexamine the worksheets, things keep emerging. By dating them, we have a sense of our thinking and its progress (or lack of progress). Examples of two RAWs are presented in Appendix A.

That's it. You now have in front of you a research abstract worksheet. (My students and I always try to make the RAW no more than both sides of one sheet of paper. Moreover, as I said earlier I <u>never</u> type my RAWs.)

The RAW is a joint product; both the author or authors and you have contributed to creating the RAW. Your product can be compared to other RAWs. As you bask in this glory, just think of

how much power you will have when you open a manila folder and gaze at twenty or so RAWs dealing with a professional problem.

Before further bragging about the advantages of RAWs, we need to make a final move. In the next section we will talk about the logic of research reports. A great advantage of a RAW is that it exposes the logical structure of a research report. What do we mean by that? So what? Read on.

The Logical Relationship Among Problem, Hypothesis, and Measure

The accounts of the world drawn by researchers emphasize relationships among events. To understand the nature of such relationships, researchers must look for these relationships in the real world and must measure the strength of these relationships (if they do exist).

Places to look for relationships.

Relationships can be looked for in the real world at three levels: population, sample, and individual. The relationship can be described in view of all persons of interest (population), a group of people selected from the population (sample), or in terms of what Mary or Dick did.

For example, suppose we are interested in the relationship between the teaching style of lecturing and student achievement.

At the population level, we are interested in how all people who lectured influenced the achievement of all the students they taught. At this level, we are interested in the relationship between classes of events.

In terms of a sample, we might inspect how all the teachers at South End High School who lectured influenced the achievement of all the South End High School students in their classes. In terms of a sample, we are interested in the relationship as found in a part of the population.

Lastly, in terms of individuals, we might examine the achievement test scores of each student in Mrs. Floyd's mathematics classes at South End High School. Here we are interested in the relationship as expressed by an individual's score.

As you might expect, researchers want to describe relationships at the population level but most frequently conduct studies at the sample level. They collect scores from a sample made up of individuals from the population. As you might also expect researchers generally are not interested in individual scores.

One immediate problem should now be evident. If we are to generalize our results from our sample to our population, the sample must be representative of the sample.

Measures of relationships.

In terms of measurement, once again we find three levels.

At the highest level, we are interested in a term whose measurement encompasses an entire class of events. At the middle level, we are interested in a term whose measurement permits us to describe some variation. At the lowest level, we are interested in a term whose measurement produces some sort of score or category classification for individuals.

Again, back to our example of achievement. At the highest level, we are interested in a measure of achievement that encompasses all its relevant aspects. This level describes achievement in theoretical terms. At the middle level, we want a measure of achievement that produces different scores for individuals who differ in their achievement. This level describes achievement in variable terms. At the lowest level, we want a specific measure of achievement that produces a specific score for a specific individual. This level describes achievement as a score on a specific measure.

One immediate problem with measurement should now be evident. At the highest level, theoretical terms may be described as several different variables and measured in many different ways. For example, achievement could be described using several different variables such as scores on a standardized achievement test, grade point average, scores on a criterion referenced test developed by the high school, or the ability to fill out a job application for a local firm. If we elected to use achievement test scores as our variable, which of the many norm referenced standardized tests will we use to

measure precisely achievement? Will we use a composite score or just the math and English scores?

Operationalizing.

The process of moving from theoretical terms to variables to measures is usually referred to as operationalization. Operationalizing a theoretical term requires researchers to make decisions about the variables and measures to use. These decisions should be presented in the research report. Moreover, if the researcher takes an approach that differs sharply from that taken by others, we should expect some discussion about why this approach and not the conventional approach.

In the RAW, the reasonableness of these decisions should be examined. Decisions about operationalizing theoretical terms by selecting variables and measures always should be scrutinized.

We can now talk about these levels as follows:

1) the theoretical level is concerned with populations and class measures;

2) the hypothesis level is concerned with samples and variable measures; and,

3) the individual level is concerned with individuals and specific scores on a measure.

If we line these three levels up, we can look for a relationship at the theoretical level between X (class) and Y (class), at the hypothesis level between X (variable) and Y (variable), and at the measurement level between X (measure) and

Y (measure). Looking down from the theoretical level or up from the measure level, all the Xs and Ys should be logically related.

We can also describe this linkage as a series of translations. First, the hypothesis translates the problem; the measure translates the hypothesis. For example, suppose our problem is: what is the relationship between reading method and school grades and school achievement? We would put this problem statement as P1 in the "Problem" part of the RAW. Second, the hypothesis is: There is a relationship between reading method A and method B on a standardized test and school grades for middle school students in Portland, Oregon. We would put this as H1 in the "Hypotheses" part of the RAW. Third, in our "Measures" part of the RAW, we would translate method A as M1--"whole language instruction," method B as M2--"lecture and recitation," standardize test as M3--"composite scores on a Jones-Brown Reading Test," and school grades as M4--"grade point average including only required subjects for all ninth grade students in all Portland, Oregon middle schools." Fourth, we can move next to the "Findings" part of the RAW where H1 is either CONFIRMED or NOT CONFIRMED. Lastly, we can move to the "Conclusion" part of the RAW where the research problem is answered. For example, there is a relationship between method A and achievement but no relationship with grades. We now have an answer to the problem.

There should be a logical symmetry among these elements. You should be able to jump into any one of these parts of the RAW and make sense of the other parts. One good test is to start

with the measures and "guess" the hypothesis and problem. If you are really brave, start with the conclusions and work backward through the RAW to the problem. Often this is a trip worth taking.

By carefully constructing a RAW, you have displayed the "logic" of the research. The logic of the research presents reasonable linkages among the problem as stated in theoretical terms, hypotheses, and measures. If the relationships are not logical, the research report will be seriously flawed; logical flaws are fatal.

For emphasis, let me repeat that last point. No matter how elegant the measures, how clever the statistics, how witty the writing, if the relationships among problems, hypotheses, and measures are not logical, the research report will be fatally flawed.

The next section deals with the QRAW--a worksheet for qualitative studies.

Figure 1 about here

BIBLIOGRAPHIC INFORMATION

PROBLEM

HYPOTHESES

DEFINITION OF VARIABLES/MEASURES

PROCEDURE

- SAMPLE
- METHOD
- STATISTICAL TEST

FINDINGS

CONCLUSIONS

EVALUATION

- METHOD
- INTERNAL VALIDITY
  - SUBJECTS
  - GROUPS
  - TREATMENT
  - MEASURES
- EXTERNAL VALIDITY
  - POPULATION
  - SETTING
  - PROCEDURES

NOTES

Figure 1. Outline of elements of a RAW.

Dealing with Qualitative Studies

Our experiences suggest that you make some modifications in the RAW for qualitative studies; hence, the QRAW. A QRAW outline is found at the end of this section. I suggest you look at the QRAW outline before reading these comments.

In general, most of my students and I find that despite differences in approach abstracting qualitative research parallels abstracting quantitative research--with one major exception. Qualitative researchers frequently will place their discussion of methods in an appendix or section at the end of an article. This involves skipping around if you try to get the QRAW done in one reading. Other than that, the following modifications should help you abstract qualitative materials.

Part 1: Bibliographic citation.

It goes without saying that the bibliographic citation section stays the same. (Don't ask why I included something that goes without saying.)

Part 2: Problem.

In the problem section, qualitative researchers usually report the problem or problems that evolved out of their research activities. In some cases this problem can be stated as a question about a relationship; in other cases it may be a description of a culture or an analysis of the meaning of terms

for participants. Usually the researcher will give you a problem statement.

Part 3: Research questions.

The research questions section that replaces hypotheses emphasizes the constructed and grounded nature of qualitative work. The questions that are reported often will include a mix of those that precede data collection and analysis, and those that are developed during data collection and analysis. Frequently you may want to include questions the researchers did not deal with in Notes.

Part 4: Major concepts.

Major concepts replaces definitions of variables/measures. These should be the concepts that the researcher uses to describe and explain the findings of the research. Again, some will predate data collection and analysis but most will emerge in the process of data collection and analysis.

Part 5: Procedures.

Procedures include three sections: site; methods used; descriptive adequacy. Make each section a separate paragraph.

The site paragraph should describe the research setting or research subjects. Usually this paragraph discusses time in site or time in interviews.

The methods used should describe the methods used. This

section should discuss access to data in terms of possible researcher influence on the setting and subjects. The researcher should present a sense of the relative worth of various methods in triangulation. For example, if observations and interviews presented different pictures, which was given more credence? Lastly, there should be some discussion of negative cases and checks with members about their understandings.

The descriptive adequacy paragraph deals with how the larger story of the report was constructed. How did the researcher put together information from the various methods? What steps were followed in analysis and interpretation? Was this construction logical? How self-conscious was the researcher in the process of constructing the story? What was omitted, for example?

Part 6: Findings.

Findings discusses the answers given to the questions. Again, there should be correspondence between questions and findings.

Part 7: Conclusions.

Conclusions should again be related to problem. There should be an evident and logical linkage between these two sections.

Part 8: Evaluation.

In the Evaluation section, the first step is **Method**. Here I

usually find that my students and I worry about how the method may have influenced information collected and about the issue of triangulation.

The next step is **Internal Trustworthiness**. Worry about five issues.

Worry first about subjects. Are informants used the right individuals to present information? Are they in the mainstream of their particular culture? If they are deviants, will there deviancy be revealing?

Next is groups. What are the groups that exist in the setting? Are these the right groups? Are they mainstream or deviant? How do the groups enhance or limit researcher access? How do the relations among groups influence individual informants?

Methods used worries particularly about the blending of various information sources. For example, how is triangulation accomplished? (This is really a **very** big issue: worry about it.) If a single method is used, what could be missed?

Logic of analysis asks how well the researcher demonstrates how information was used to construct a larger sense of the setting and what was happening there. Do things hang together in the narrative convincingly? Is the construction coherent? Do you have a good sense of the steps and the logic of report construction?

Lastly, there should be some discussion of researcher/subject relationship. Did the researcher feel rapport

with the subject or subjects was good? What might have been denied to the researcher as an outsider?

The last step of Evaluation is **External Generalizability**. We worry about three issues.

First, worry about representativeness. Are the respondents typical? Are they good sources for understanding the world of the sites similar to this one?

The next issue is setting. Does this setting appear to be close to other settings the researcher may be interested in?

The last issue is intrusiveness. How did the presence of the researcher influence the site or interview? If the researcher didn't worry about this, why not?

Part 9: Notes.

The concluding section is Notes.

Appendix A has two examples of QRAWs.

Insert Figure 2 about here

BIBLIOGRAPHIC INFORMATION

PROBLEM

RESEARCH QUESTIONS

MAJOR CONCEPTS

PROCEDURES

- SITE
- METHODS USED
- DESCRIPTIVE ADEQUACY

FINDINGS

CONCLUSIONS

EVALUATION

- METHOD
- INTERNAL TRUSTWORTHINESS
  - SUBJECTS
  - GROUPS
  - METHODS USED
  - LOGIC OF ANALYSIS
  - RESEARCHER/SUBJECT RELATIONSHIP
- EXTERNAL GENERALIZABILITY
  - REPRESENTATIVENESS
  - SETTING
  - INTRUSIVENESS

NOTES

Figure 2. Elements of a QRAW.

Why CREATE Worksheets?

Let me repeat some notions I have suggested earlier; they are important. There are three major advantages to creating worksheets.

First, worksheets condense lengthy reports of educational research into a page or two of concise information. Twenty research articles at twenty pages each constitute four hundred pages (or more) of reading. If you Xerox these at a nickel a page, you have dropped twenty dollars. Twenty RAWs will be at most forty pages. (I would like to say twenty pages but we will cut you a little slack here.) Equally, a book of six chapters can be reduced to ten to twelve pages.

Although my pension fund probably owns stock in companies that make Xerox machines, they are dangerous toys. By copying everything, you learn nothing. Learning occurs when you do a worksheet. (This is why my students and I love worksheets.)

If you must spend money for Xeroxing, copy bibliographies or reference sections. (Be certain you give them a full bibliographic citation.) Equally, an elaborate chart or a large table of data could be copied. (Again, complete citations.) Other than those unique pages, leave the machines to the suckers.

Second, abstracting puts educational research reports in a consistent format. **The worksheet format intentionally facilitates comparisons.** You can, at a glance, compare how

various authors have defined a key variable or divided their subjects into groups.

The ability to compare is the heart of the matter. It is comparison that enriches views of problems, solutions, and patterns of thinking about professional problems and solutions.

One other nice thing. You can make use of abstracts created by your professional colleagues. Separately and together professionals can prepare and then compare the results of one or many studies.

Third, abstracting actively involves you in describing and evaluating what is known and not known in your area of educational interest. By reviewing the worksheets and creating your own reviews, you become an active participant. You know how others have defined problems in your area, what solutions they have found, the quality of their exploration, the problems not explored, and possible next steps for investigation. Some of these findings are useful for educational researchers; many are important to educational professionals.

Chapter 3 Creating a Practice Abstract Worksheet for a Report of Practice

My students in education will often come to me and ask (somewhat sheepishly), "I found this really neat report in ERIC about what they are doing in Gotham School District. It fits right on my topic, but I don't think it is a piece of research. Can I still abstract it?" I always tell them "yes" but that they will have to use a different worksheet since our RAW will not fit with a report of practice.

This chapter presents a Practice Abstract Worksheet (PAW). In many ways it parallels a RAW or a QRAW, but in several important ways it is different. I shall first present the worksheet format and then discuss some important differences.

One warning. The reporting of practice has not reached the level of rigor about conventions that the reporting of research has. Reports of practice, such as final reports of the implementation of outcome based education in Gotham City elementary schools, come in all shapes and sizes. The ERIC system contains many of these reports. To successfully abstract reports of practice, you will have to work hard and will find still find gaps in completing the worksheet.

The Practice Abstract Worksheet

The practice abstract worksheet consists of ten steps. Some of these duplicate the parts of the RAW; many do not.

Step 1: Bibliographic citation.

Always start the worksheet with a complete bibliographic citation. Again, use APA format, note the library or source of the report, put the first author's initial in the upper left hand corner, and put a label for the report in the upper right hand corner.

Step 2: Problem statement.

Problem statements in practice are statements that a deficiency existed that could no longer be tolerated. They are not questions of relationships but are statements of need. A typical statement might be: "The third grade students in our school district were not achieving at grade level in spelling."

Step 3: Intended outcome.

In contrast to the problem, the intended outcome points to a new goal to be achieved in practice. In terms of our example, "The third grade students in our school district will achieve at grade level in spelling." You may want to note whether this outcome is one desired by the district or mandated by a state or federal agency.

Step 4: Measures of deficiency, implementation, and outcome.

Break this section into three paragraphs. Generally you will have to skip around the report to deal with these three measures.

The first paragraph should indicate those measures used to determine that a deficiency existed. In our example, this would be a spelling test created by the district and given at the end of the third grade.

The second paragraph should present any measures used to see if the treatment was being administered. Were observations made to see that third grade teachers were implementing the new spelling program?

The third paragraph presents measures used to ascertain the outcome of the new program. Again, these might be the initial spelling test, a new test, a spelling bee, or an article written for the school paper.

Step 5: Procedures.

Again, this will probably be the longest section of the worksheet. Use separate paragraphs to discuss the characteristics of the subjects (third grade student in the district), the procedures (the new spelling program in detail), statistical tests or other means used to determine the effects of the program.

In the procedures section, spend time on the program itself

and the training of teachers who implement the plan. Was the program radically different from what teachers had been doing? How much training in the program were the teachers given? Were the teachers volunteers or were they required to participate? Were there rewards for participating?

Step 6: Findings regarding outcomes.

Usually practice reports discuss several different outcomes. Typically they deal with topics such as: What are the results of the program? Did student achievement scores increase? Were there affective outcomes for students? What were the effects on teachers? Did the program outcomes affect the entire school? What was community reaction?

Some students find it helpful to approach this part by asking what was good and what was bad about the new program.

Step 7: Conclusions.

Did the program remedy the deficiency?

Where there unintended consequences--good and/or bad?

Step 8: Transfer to a new site or sites.

This is an important step that is often not dealt with by reports. Could the program be carried to another district and be put in place? What conditions in the developing district may assist or hinder the program? What conditions in the receiving district may assist or hinder the program?

Step 9: Evaluation.

I believe you should use the same format for evaluating practice reports that you use for evaluating quantitative or qualitative research studies.

Begin by determining the method and by then examining the internal validity of the report in terms of subjects, groups, treatments, and measures. In terms of external validity, examine the population, the setting, and the operations.

Step 10: Notes.

I find that students who use this worksheet format often spend a good deal of time in this section worrying about conditions that help or hinder transfer to new sites.

Significant Differences Between RAWs and PAWs

One thing that my students always complain about when they do PAWs is that practice reports aren't well organized. In contrast to research reports in journal, they have to hunt through practice reports for various steps.

I try to point out two things: first, disciplines whose members conduct research and their research journals reward people for standardizing the reporting of research by publishing that research. School district personnel, in contrast, get no rewards for standardizing their reports of practice; the reports will be printed. Second, research reports are written primarily

for researchers while practice reports are written for various audiences including parents, administrators and teachers in their school district, and external funding officers.

Students quickly come to see differences between hypotheses and intended outcomes. I suggest to them it is a good place to ponder our discussion about the differences between research and practice.

Chapter 4 Using the Library and Creating a Personal Review of the Literature

This chapter deals with three topics. First, it discusses a strategy for using a library intelligently. Second, it discusses a strategy for developing a PERL (PErsonal Review of the Literature). Third, it suggests the importance of creating PERL's.

Using the Library Intelligently

This section details a series of steps for using the library to locate educational research reports.

Step 1.

Always begin your library search with a feeling about both elements of the problem. Do not begin by examining a single element of the problem.

For example, suppose your problem is the relationship between teacher styles and teacher effectiveness. Although both these terms are large and vague, with them in mind you can move to the second step. In contrast, if you go to the library and look for teacher effectiveness, you will find it and at least

twenty other ways of looking at a second element. Start with a sense of a relationship.

Step 2.

Go to the ERIC Thesaurus of Descriptors and examine both terms. List possible descriptors that come close to each term.

Descriptors are large terms used by the ERIC system to catalog materials. They are a list of possible ways to organize research reports.

With the list of descriptors for both terms in hand, go first to the Encyclopedia of Educational Research, then to the various Handbook of Research on Teaching, Handbook of Research on Educational Administration, and lastly to the various Review of Research in Education. Scan the tables of content and the indices looking for terms that match (or come very close to) your descriptors. If you do find a match, review the material and Xerox any bibliographies that apply.

Step 3.

Return to the ERIC system and use the ERIC CD-ROM to generate a list of articles that fit the descriptors. Print or copy to your computer disk the bibliographic citations; do not print or copy the abstracts. They do not fit neatly on our worksheet; there is no need to waste good computer paper or disks.

If you do not know how to use ERIC CD-ROM, learn. If your

library does not have it, find one that does and also complain to the librarian. (This is the only anti-social advice to be found in these chapters.)

Step 4.

Scan the last ten years of Review of Educational Research and Educational Administration Abstracts. Again, look for review articles or article abstracts that are close. (If you do find a review article on your topic, you have our official permission to celebrate.)

Step 5.

Pause. By now you have generated a list of possible articles and documents to review. Look through your list and see if there are any repeats (generally good bets for your first worksheets), if a few authors' names emerge from several different sources (again, another good bet), and if there is a review of the literature article you have not reviewed. If you do find a review of the literature article, study it closely now.

End this pause by making a list of ten likely candidates for worksheets.

Step 6.

Do worksheets for the first five articles. Do a mini-review of the literature. (This will be discussed in the next section.) Do five more articles and a second mini-lit review.

Step 7.

As you do your worksheets, use the references and footnotes to find other possible articles. One good footnote can easily lead to a series of articles. Look for authors who appear to write a great deal in this area. Continue looking for articles that review the literature.

Step 8.

Go back to Step 2 and look again at the ERIC Thesaurus, the Encyclopedia, Handbooks, Reviews, and Abstracts. Sharpen your descriptor list and make another pass on the ERIC system.

This is also a good time to think about looking in Dissertation Abstracts. In general, professionals will not find much of use in dissertations. Published research reports are usually more valuable. However, if you are working on a thesis or dissertation, your library strategy must include Dissertation Abstracts.

Step 9.

Continue making worksheets. As you add five new abstracts, create a new mini-lit review. Look for patterns, be alert to new authors, watch for new descriptors, and continue praying for reviews of the literature.

Step 10.

Start looking toward closure. Are you abstracting and finding little new? Do you feel you have a good sense of the area? Compare your sense to a good literature review article.

Start thinking about developing your personal Review of the Literature.

Creating a PERL (PErsonal Review of the Literature)

You should have been putting your RAWs and QRAWs in a manila folder labelled, for example, TEACHER STYLE R TEACHER EFFECT. Put your PAWs in a folder labelled PAW: TEACHER STYLE R TEACHER EFFECT.

As you gather your abstracts, begin systematically to review them and make comparisons. Add to the Notes sections as you gain insights or see new linkages. (Don't forget to date your additional notes.)

After you have collected five new worksheets, do a mini-lit review. This means that I systematically do reviews at five, ten, 15, 20, 25 and so on RAWs. These reviews are done in pencil and always follow the same pattern. (When completed, I put each of them at the end of the manila folder.)

Do the same thing for your PAWs. As you gather five new PAWS, do a mini-lit review. There are many strategies for doing a mini-lit review. I will present three different strategies for your consideration.

The first strategy is most often used by my students. It is a pragmatic strategy. Begin the mini-lit review by laying the RAWs and QRAWs side by side on a large table.

Systematically read each problem statement. After you have

read each statement, compare it to the others. What are the similarities and differences in problem statements? Write a sentence or two summarizing the similarities and differences.

It is worth repeating a very important point here. Get in the habit of referring to the reports when you speak or write by the author(s) name(s) and the date of the report. For example, by speaking of Short and Foley, 1982; Tyler, 1983; Thompson and Brown, 1981, you remind yourself that research is done by individuals at certain times. They have made a series of decisions about their work; others dealing with the same topic may or may not agree with their decisions. Some of those decisions may have been influenced by the time when the research was conducted.

After comparing similarities and differences in the problem statement, move to the hypotheses and look for similarities and differences across studies. Again, write something done that displays these facts.

Systematically compare each part of the worksheet. What trends emerge in terms of hypotheses, samples, procedures, or findings?

Two sections require special handling. The Evaluation and Notes sections should be reviewed but focus your attention in these two sections on the "big" picture. Look for patterns as opposed to attending closely to individual articles. Some of my students prefer to write these sections up separately while others prefer integrating the materials from these two sections

into other sections. I generally urge those who are new at this game to write them up separately. This is always a safe and sane strategy because it provides an opportunity to review and organize your RAWs and QRAWs along familiar lines. As you get more skillful, you may want to integrate the Evaluations and Notes into other sections.

A second literature review tactic is to re-order your abstracts by their publication date. This provides a neat historical perspective. Pay particular attention to see if some measures or procedures continue to be used over time or if some measures or procedures fall into disfavor. This tactic often pays big dividends.

A third strategy one of my colleagues favors is to organize by method. He puts all the experiments together, all the correlational studies together, and so on.

As you review, create a sheet labelled GOOD IDEAS and put it at the front of your folder. Again, date your entries. I find this log of good ideas at the front of the folder and the mini-reviews at the end very helpful.

When you completed all your worksheets and are ready to create the "big" PERL, begin by reviewing the mini-reviews of lit and the GOOD IDEAS sheet. Pick your strategy and set to work.

When you have completed your PAWS and are to create the "big" PERL for PAWs, begin by reviewing the mini-reviews of lit and GOOD IDEAS sheet.

I recommend that you do these two PERLs separately and then

compare them. My students and I have found that we gain more insights if we are able to compare these two PERLs. If the need arises, they could then be combined into a BIG PERL.

A good source of examples of literature reviews and strategy is Review of Educational Research. Remember that working your way through each of the parts is a safe strategy.

A sample PERL based on 17 RAWs is found in Appendix B.

PERLs and Professional Practice

With all those reviews of research literature existing out there, why should professionals build their own?

First, the vast majority of reviews done by researchers are intended for other educational researchers. These reviews are efforts to organize and evaluate the existing store of research reports. Their authors are interested in what is right or wrong with research in the area; the reviews therefore have little interest in and spend even less time on the implications of research for practice.

Second, if reviews are directed at the practicing professional, the reviews tend to higher order generalizations such as "Don't beat on children" or "Principals should lead." Because they seek generalizations that cut across several contexts, the resulting generalizations become increasingly context free. Such generalizations, my students claim, are worthless to practitioners embedded in a particular context.

Moreover, these generalizations become increasingly fuzzy. They advocate things that sound a good deal like the advice our mothers would give us.

By examining reports themselves, professionals may find those that fit or do not fit their situation. For instance, if you are teaching social studies in a small high school in a rural community, you can tailor your PERL to that particular context. While you may review reports from large urban high schools or selective private schools, and while such reports are often suggestive, those that fit your context are the most helpful for professional practice.

Third, by developing their own PERLs professionals gain a deeper appreciation for what their field knows, for what it suspects, and for what it doesn't know.

That's it. You now have the tools; its up to you to go to work.

Appendix A: Examples of RAWs

Attached are two RAWs and two QRAWs; various students did them. In general, they are good. They vary slightly in detail and insight; some are marginally better than others in some sections and not quite as good in others. I suspect if you took the best sections of each you would have an excellent model for an outstanding RAW or QRAW.

Review them; critique them constructively; use them as guides for improving your own abstracting.

G PRINCIPAL R BOUNDARY-SPANNING

(10/7/89--UNIV Lib)

Goldring, E. B. (1986). The school community: Its effect on principals' perceptions of parents. Educational Administration Quarterly, 22, 115-132.

PROBLEM: What accounts for variations in principals' perceptions of parents?

HYPOTHESES:

H1 Characteristics of the community which reduce or increase principals' uncertainty will influence their perceptions of parents.

H2 Parents can serve two role to create uncertainty for principals: 1) guardian of their children and 2) a collective group.[THIS IS NEVER TESTED--IT SEEMS A DEFINITION OF SORTS]

DEF OF VARIABLES:

principals' perception of parents--1) sentiment toward parents and 2) engagement with parents

community characteristics--Responsiveness; Assertiveness in making demands; Homogeneity of expectations; Eagerness to participate--principals rated hi to lo

parental role--[NEVER DEFINED]

PROCEDURE:

sample--113 suburban elementary school principals in 59 districts and three counties in Chicago metro area

method--semi-structured interviews

stat test--ANOVA

FINDINGS:

SENTIMENTS

1. the more assertive the community, the more negative principals' sentiments toward parents

2. principals had most negative sentiments if parents in communities were somewhat eager to participate (higher than if very eager to participate)

3. principals in communities with parents who were somewhat eager to participate mentioned the introduction of new programs as an important change in their schools

PARENTAL ENGAGEMENT

4. the more heterogeneous the community, the more principals engaged with parents

5. principals engaged most with parents in communities which were unresponsive to the school

CONCLUSIONS:

1. characteristics of the community which created uncertainty for principals influenced their perceptions of parents

2. principals viewed engagement as a means of reducing the uncertainty of an amorphous parental clientele

EVALUATION:

METHOD--

INTERNAL VALIDITY--

SUBJECTS--

GROUPS--

TREATMENT--

MEASURES--would experience as principal influence community ratings?

EXTERNAL VALIDITY--

POPULATION--would these findings apply to middle or secondary school principals?

OTHER SETTINGS--would findings apply in states with county unit systems? large urban settings?

PROCEDURES--

NOTES:

SES not linked to community characteristics (p. 131 table)

part of Lortie study on principals

also see Goldring (1990) and Licata and Hack (1980)

B, 1963 APACHE PARENTS R CAREER CHOICE

Bernardoni, L. (1963). Apache parents and vocational choice. Journal of American Indian Education, 2(2), 1-8.

RESEARCH PROBLEM: What role do Apache parents play in the vocational choice of their children?

HYPOTHESIS: Apache parents play an important role in assisting their offspring to arrive at a vocational goal.

DEFINITION OF VARIABLES: Parents is defined as the persons who have the responsibility of providing food, shelter, clothing, money, and parental guidance regardless of the consanguinity or legality of the relationship.

Vocational goal is defined as either college or career and is measured by interviews and a rating scale.

Role is defined as influence and guidance given in setting vocational goals.

DESIGN AND PROCEDURES: The SAMPLE consisted of the parents of all male Apache students attending the Whiteriver Public High School during the period from October, 1961, to February, 1962. The final sample included 46 families involving 51 students.

STRUCTURED INTERVIEWS patterned after that used by Donald Super in his Career Pattern Study were the major instrument used. The guides were revised by adding items concerning Apache attitudes and behavior and were used in interviewing the students

at school and the Apache parents at their homes. In addition to interview results, each family was rated on an acculturation scale by two Apace raters who were familiar with all of the families involved. Grade point averages for each student were also computed.

FINDINGS: As the Apaches progressed through the grades, it became obvious that the students did not plan to uilize parental information or guidance in vocational plans but would inform their parents after they had made up their minds. None of the seniors felt that their parents could contribute much in vocational planning.

Parents who are better acculturated tend to have more discussions with their sons concerning vocational plans than less acculturated parents.

CONCLUSION: Because only 19 of the 51 boys had even discussed vocational choice with their parents, it must be concluded that Apache parents play only a minimal role in this process. The following recommendations seem appropriate: 1) The school should evolve systems of personal communication with parents so that they could become more knowledgeable concerning the educational and vocational problems faced by their sons. 2) Adult education and community development projects should be executed to promote knowledge of the functions that a family and community should perform to assist students in educational and vocational endeavors.

EVALUATION

METHODS

INTERNAL VALIDITY

SUBJECTS Do most students (regarless of background) spend time discussing vocations with parents? Does SES play a role? What of parents from the old country--my son, the doctor?

GROUPS

TREATMENT

MEASURES How good was the acculturation scale?

EXTERNAL VALIDITY

POPULATION

OTHER SETTINGS Is Whiteriver School typical?

PROCEDURES

NOTES: The general argument fits with many other reports. Parents are not good sources of info about the non-Indian world.

ABSTRACTED 9/27/87--CURRICULUM LIBR

P Life in Classrooms

(11/7/92)

Power, B. M. (1992). Rules made to be broken: Literacy and play in a fourth-grade setting. Journal of Education, 174, 70-86.

PROBLEM: What are the patterns and rules governing children's play?

RESEARCH QUESTIONS: Can children's play reveal cultural values, a "generative grammar," of what is important in society?

MAJOR CONCEPTS: play--NOT DEFINED; literacy--written and oral language

PROCEDURES:

The site was Mary Grier's classes of fourth grade students in an urban classroom along the eastern seaboard. Mary uses a holistic literacy curriculum. Observations lasted from fall 1988 to spring 1990.

The method was participant observer who never disciplined students. Article uses microanalysis of a few hours of play in and out of classroom, September, 1989. Conversations were reconstructed from field notes, not taped.

The adequacy seems good in that events and conversations seem normal.

FINDINGS:

1.There are four sets of rules--

a. rules of game or play

b. rules of literacy workshops

c. rules defined by specific students

d. rules of adult society and of child society

2. Rules of game or play are complex and include both social hierarchies and literacy workshop. Play can help academics (instrumental), hinder academics (illicit), or be recreational (usually outside class).

3. Teacher and students negotiate about literacy rules as conflict occur between literacy and play.

4. Teacher must balance student initative and adult cultural values. Conflict between children's social norms and adult social values.

CONCLUSION: Children's play a window into how schools and larger culture inform each other, with literacy as tool.

EVALUATION:

METHOD Microanalysis of participant observation

INTERNAL TRUSTWORTHINESS

SUBJECTS fourth graders

GROUPS

METHODS conversations not taped

LOGIC OF ANALYSIS case for conflict between teacher and students clear; less clear that teacher represented larger values of society other than being on task

RESEARCHER/SUBJECT did not discipline--unusual adult role for students

EXTERNAL GENERALIZABILITY

REPRESENTATIVENESS

SETTING

INTRUSIVENESS

NOTES: 1. done early in setting

2. check for other classifications of play

A (3/8/88--STATE U LIB) Student strategies

Allen, J. D. (1986). Classroom management: Students' perspective, goals, and strategies. American Educational Research Journal, 23, 437-459.

Problem: What are high school students' perspectives on classroom management?

Research Questions:

Major Concepts: PERSPECTIVE--students make sense of classroom and assign meanings to their behavior--perspective is revealed by classroom agenda CLASSROOM AGENDA--goals that hold meaning for students according to norms of their culture and strategies that help them achieve their goals CONTEXT--elements of classroom environment that influence or are influenced by formation and operation of students' perspective

Procedures:

Site: A 600 student high school (9-12) in a small community in Southern California. Student body was 65% Anglo, 35% Mexican-American, and less the 1% others.

Method: Enrolled in ninth grade schedule. He attend four classes (100 students and 4 teacher). Classes were Agric I, Spanish I, Health Ed, and English. Three phases of data collection: participant observe for 8 weeks; observe and student interviews for 8 weeks; 3 teacher interviews.

Adequacy: Triangulation. Constant comparative method.

Findings:

1. Classroom agenda--two major goals (socialize and pass course) and six strategies (initial events--1. figuring out the teacher; routine events--2. having fun, 3. giving the teacher what he wants, 4. minimize work; critical events--5. reducing boredom, 6. staying out of trouble)

2. context--students use of strategies influenced by classroom context

agric--diminished academic activities and informal stud-teacher interactions

Spanish--high academic expections and explicit classroom rules

health ed--easy classwork and flexible socializing and good rapport

Conclusions: Student perspective focuses on learning in a sociable environment.

Evaluation:

Method--observations and interviews

Internal trustworthiness

Subject ninth graders

Groups normal classes

Methods used

Logic of analysis grounded theory

Researcher/subject English classes (?)

External generalizability

Representativeness ninth graders versus fourth or

eleventh graders

Setting ethnicity?

Intrusiveness enrolled in ninth grade classes

Notes: see Cusick (1973)

Appendix B: An Example of a PERL

The following PERL was created by a student. I think it is a very good example of a PERL and what a PERL can do--it reviews the sections of the RAW (including an evaluation section), provides a good sense of what research says and doesn't say, and has some clear implications for practice. It is a keeper.

A Literature Review of the Effects of Computer Word Processing on Student Writing

Introduction

Due to our ever increasing technological world, schools are being confronted with the issue of how they can most effectively incorporate computers into their curriculum. One area in particular that is being investigated is the effects of computer word processing on student writing. This review compares and contrasts 17 selected studies relating to the effects of word processing on student writing. As will become obvious, research on this subject is still in a nacent stage and is primarily based on observation and personal opinion.

Research Problem

Research questions vary on the specificity of the effects of word processing on the process of student writing. A more general concern is if students learn to write better more quickly (Little, 1988; Ellsworth, 1990). "Fluency in communication" (Muldrow, 1986) and "transformation of writing composition processes" (Madigan,1984) are also explored. A more specific interest is how WP (word processing) impacts the number of revisions students make (Little, 1988; Gula, 1983; Wheeler, 1985: Hawisher, 1987; Kurth, 1987) and the types of revisions

(O'Donnell, 1987; Hawisher, 1987; Kurth, 1987). Length of composition using a word processor is also explored (Kurth, 1987).

Other more general areas of interest include the effects of WP on student attitudes and peer interaction (Muldrow, 1986; Feldman and Ray, 1989; Bertram, Michaels, and Watson-Gegeo, 1985), and the idea that WP may be just another useful teaching/learning aid (Dayton, 1986; Shuman, 1985; Laarsen, 1984; Hennings, 1981). In contrast, a more demanding research problem is the question of whether word processing should be a requirement for high school graduates (Dayton, 1986) and a prerequisite for freshman writing classes (Opack and Perushek, 1986). Also, what are possibilities for using word processing as a learning aid for "low Achievers" (Dalton and Hannifin, 1987) and for the "Learning Disabled" (Ellsworth, 1990)?

Hypotheses

The majority of researchers hypothesize that the use of word processing in classrooms will have positive effects, in one way or another, on student writing processes. For example, word processing helps students write better more quickly (Little, 1988; Ellsworth, 1990). Fluency in communication is increased (Mudrow, 1986) and writing composition processes are transformed (Madigan, 1984). Students do more rewrites when using a word processor (Little, 1988) because rewriting is made easier (Wheeler, 1985).

Behavioral changes of students when using WP include a positive attitude about writing (Muldrow, 1986). Students are willing to write more because they take more pride in their finished products (Feldman and Ray, 1989) and feel a greater purpose for writing (Bertram, Michaels and Watson-Gegeo, 1985). In a general way, word processors used appropriately are useful teaching/learning aids for English teachers (Shuman, 1985; Hennings, 1981; Larsen, 1984; Dayton, 1986).

Other researches negate the positive effects of WP. For example, students are believed to make the same errors whether using WP or handwriting papers (O'Donnell, 1987). Students do not make more extensive and successful revisions using a WP than with conventional methods (Hasisher, 1987; Kurth, 1987) and they do not necessarily write longer papers. This, of course, is an interesting contrast to those researchers who hypothesize that it should be mandatory that high school graduates are trained in computer literacy (Dayton, 1986) and that WP should be a prerequisite course for freshmen writing classes (Opack and Perushek, 1986).

Definition of Variables

Two types of computers are cited in the research--Apple (Mudrow, 1986; Dalton, 1987; Kurth, 1987; Hennings, 1981) and IBM (Opack and Peruskek, 1986; Hawisher, 1987), compared with a variety of word processing systems used: Word Perfect (Kurth, 1987); Mac Write (Feldman and Ray, 1989); Quill (Bertram, 1985);

and "others", such as Volkswriter 1.2 and Wordstar 3.2 (Madigan, 1984; Hawisher, 1987; Ellsworth, 1990). Interestingly enough, a number of researchers choose not to specify the type of WP system (Little, 1988; Dayton, 1986; Gula, 1983; Wheeler, 1985; Shuman, 1985; O'Donnel, 1987).

Word processing is compared with the "traditional/conventional" approach to writing defined as either pen and paper (Dalton and Hannafin, 1987; Larsen, 1984) or typewriter and pen (Gula, 1983; Hawisher, 1987).

Writing skills are broadly defined as either structure, punctuation, and usage (Dalton and Hannafin, 1987; O'Donnell, 1987) or the process of creating, recording and editing (Ellsworth, 1990; Madigan, 1984; and Wheeler, 1985). The term editing is further broken down. Some view it in a broad context such as, "all change, including spelling from first to the next draft" (Kurth, 1987), or as the "reorganization of papers". Other researchers choose to specify the editing processes of moving, copying, deleting and adding (Hawisher, 1987) or as phrase/surface or global changes. Global changes affect at least two or more sentences (Kurth, 1987).

The definition of students is extremely varied, ranging from college students (Little, 1988; Larsen, 1984; and Hawisher, 1987), to high school (Dayton, 1986) to sophmore and junior high students (Kurth, 1987). Very few studies are much more specific unless it is the author's ninth grade Language Arts class (Muldrow, 1986) or "Low Achievers", seventh graders testing below

average on the CTBS test (Dalton and Hannafin, 1987). Many of the studies leave "students" undefined (O'Donnell, 1987; Madigan, 1984; Ellsworth, 1990; Bertram, 1985; Wheeler, 1985).

Computer literacy is those skills needed in a technical age (Dayton, 1986), including minimal computer skills (Opack and Perushek, 1986). Using the computer "appropriately" in the classroom means not as toy for "fun and games" (Dayton, 1986).

It is interesting to note that positive writing behavior is not defined (Muldrow, 1986; Feldman and Ray, 1989), although peer collaboration which is reflective of a more positive attitude towards writing is defined as "group sharing of writing strategies" (Wheeler, 1985).

Designs and Procedures

Sample.

Sample groups range in age from the junior high level (Bertram, Michaels and Watson-Gegeo, 1985; Madigan, 1984; Dalton and Hannafin, 1987) to high school (Gula, 1983; Dayton, 1986: Muldrow, 1986; Kurth, 1987) to the college level (Hawisher, 1987; O'Donnell, 1987; Larsen, 1984; Feldman and Ray, 1989; Opack and Perushek, 1986; Little, 1988). A few sample groups are specifically labeled due to their unique features, such as, they are from the "lower class" in northeast U.S. (Bertram Michaels, and Watson-Gegeo, 1985), in a special elective class for interested writers (Kurth, 1987), are enrolled in a required freshman rhetoric course and have earned scores between 25-31 on

ACT compositions and between 23-27 on English portion of the test (Hawisher, 1987), or are in the author's writing class (Gula, 1983; Little, 1988). Two school names are mentioned; The University of Minn., Duluth (Opack, Michele, and Peruchek, 1986) and University of Mississippi (Feldman, Phillip and Ray, 1989). Many of the studies do not specify sample groups or sample size (Shuman, 1985; Ellsworth, 1990; Hennings, 1981; Wheeler, 1985). Sample size is generally assumed to be classroom size or grade size, which, of course, varies from school to school; that is, except for two studies that specify number - 20 students (Hawisher, 1987) and 28 (Kurth, 1987).

Sample groups do not seem to be dependent on students' past experience with WP, although one study in particular makes reference to the fact that all students have a minimal level of student expertise with WP previous to study (Hawisher, 1987).

Procedures.

Very few of the research studies reviewed have extensive procedures. The majority have a loosely designed structure of classroom observation (Madigan, 1984; Shuyman, 1985; Ellsworth, 1990; Larsen, 1984; Feldman, Phillip and Ray, 1989; Muldrow, 1986; Dayton, 1986).

A slightly more structured approach used by some is the following: students are placed in one of two groups. Group #1- Control (uses traditional writing methods) and Group #2- Experimental (uses WP). Both groups are assigned the same assignments and the same teaching methods are used. Teacher

compares the compositions from each group (O'Donnell, 1987). A similar approach, yet the two groups are not as well defined, is the author compares (comparing?) his past classes not using WP to his present class using WP (Little, 1988). In neither case are the specifications for comparison revealed.

In all but one of the studies, students stay with their assigned writing "tools" for the duration of the study. The one exception is a study that alternates group use of the WP between assignments. In this case, four unspecified paper topics are given and for each assignment students must submit three essay drafts collected over a two week period. Two of these are produced on the WP and two without (Hawisher, 1987). All of these assignments are done outside of class.

The more extensive research studies being reviewed include more definitive procedural steps, and a few utilize specific measurements to assess composition quality. For example, in another study, both groups, randomly assigned, are given the same assignments throughout the year: two weekly papers (1 page each) on a variety of subjects, and four major papers (3-5 pages). All students are encouraged to complete outline and skeletal rough draft on major papers before using the WP (if in group #2). Two additional revisions are required before papers can be evaluated by the instructor (Dalton and Hannafin, 1987).

Another study specifies days, times, and the location when the two groups meet (Kurth, 1987). In this situation, students are expected to do writing in class, although they may take

papers home. In class, the students are assigned to revising and editing groups, although there is no mention if they remain in these same groups. Interestingly enough, only one study specifically mentions that the same instructor teaches both groups and what her qualifications are (Kurth, 1987).

Procedures for evaluating student compositions vary greatly from study to study. One approach is to take a post-test writing sample (standardized 1-2 page expository essay on a common topic) the last month of school and have three blind examiners judge on structure, correct usage, punctuation and spelling. 100 points are possible and errors are subtracted (Dalton and Hannafin, 1987). Diederich's analytical scale for measuring writing quality is used in another study (Hawisher, 1987). In addition, essay revisions are classified as either surface changes or meaning changes in accordance with procedures outlined by Bridwell (1970) (Hawisher, 1987; Kurth, 1987).

Statistical measuresments.

Due to the fact that most of the research conducted in the area of writing and word processing is based on observation, few of the studies reviewed used statistical tests, whereas the majority did not(Little, 1988; O'Donnell, 1987; Bertra, Michaels, and Watson-Gegeo, 1985; Hennings, 1981; Gula, 1983; Dayton, 1986; Muldrow, 1986; Feldman and Ray, 1989; Larsen, 1984; Wheeler, 1985; Ellsworth, 1990; Shuman, 1985; Madigan, 1984). When statistical tests were used, they measured the following; the

mean and SD for the number of revisions made, and the frequency of certain types of revisions (Hawisher, 1987; Kurth, 1987; Dalton and Hannafin, 1987). Also analyzed was the mean and SD of composition length between groups #1 and #2 (Kurth, 1987).

Findings

The majority of the research studies being reviewed find that the use of word processing in the classroom has a positive impact on student writing processes and if used appropriately, are useful teaching and learning guides (Shuman, 1985; Hennings, 1981; Larsen, 1984; Dayton, 1986). For example, it helps students write better more quickly (Little, 1988; Ellsworth, 1990) because it eases the process of revision (Wheeler, 1985). Students feel a greater purpose for writing (Bertram, Michaels and Watson-Gegeo, 1985) and take more pride in their finished products (Feldman and Ray, 1989). Students also tend to have more peer interaction when writing with a WP (Bertram, Michaels, and Watson-Gegeo, 1985).

Although in the minority, the findings of some studies indicate that whether students use a word processor or not, they will continue to make the same errors (O'Donnell, 1987) and will not necessarily compose longer papers (Hawisher, 1987; Kurth, 1987).

Conclusions

A dichotomy exists between research conclusions on the

effects of word processing on student writing. Most of the research studies conclude that students will benefit in a variety of ways if they are taught to use word processing to compose papers. Conclusions vary on the specificity of the effects, though the primary effect seems to be that WP eases revision (Little, 1988) and helps students to "write better" (Muldrow, 1986; Madigan, 1984) and have a better attitude towards writing (Muldrow, 1986; Feldman and Ray, 1989; Bertram, Michaels and Watson-Gegeo; 1985). A few researchers conclude that because of the usefulness of WP to students that it should be a requirement that high school graduates be trained in computer literacy (Dayton, 1986) and that WP should be a prerequisite course for freshmen writing class (Opack and Perushek, 1986).

The few researchers who disagree with the aforementioned conclusions do so because of the following reason - students do not make more extensive and successful revisions using a WP than with conventional methods (Hawisher, 1987; Kurth, 1987).

Evaluation

The research studies that have been reviewed, for the most part, lack substantial evidence for their findings and conclusions: hence, they are both internally and externally invalid. Too many sample groups are not defined or are not clearly delineated. Most of the procedures used to measure the effects of WP are based on observation, often of an unidentified individual/s (qualifications unknown). Few statistical

measurements are used, and there are no agreed upon standards for composition analysis. Aggravating the situation is the fact that few variables are clearly defined, including "the process of writing". Until the process of writing is more clearly understood, research on the effects of WP on student writing will continue to be founded on personal bias.

(Attached to the review was a bibliography of the 17 articles in APA format.)